TITLE OF THE INVENTION

VEHICLE INFORMATION PROVIDING APPARATUS, VEHICLE
INFORMATION PROVIDING SYSTEM, VEHICLE INFORMATION
PROVIDING METHOD, COMPUTER PROGRAM, AND COMPUTER
READABLE STORAGE MEDIUM

FIELD OF THE INVENTION

The present invention relates to the field of a vehicle information providing apparatus that provides on-line information associated with a vehicle to a user's information terminal via a communication line.

BACKGROUND OF THE INVENTION

As a conventional information providing apparatus that provides price information associated with an article to the user, the following apparatus is known. That is, as disclosed in Japanese Patent Laid-Open No. 5-274326, catalog information of articles as objects for sale is stored in a database in the form of multimedia information, and information associated with a given article specified on a computer system is read out from the database to allow external output, estimation, shipping inquiry, order reception process, and the like.

In the field of automobiles as a representative vehicle, a technique for providing on-line information associated with a vehicle to a user's information

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terminal via a communication line has been proposed. As an example of such technique, Japanese Patent Laid-Open No. 7-199820 proposes a technique for making on-line virtual exhibition of automobiles.

5   According to the technique of Japanese Patent Laid-Open No. 7-199820, a customer who wants to purchase an automobile not only can collect article catalogues but also can browse information associated with a plurality of types of automobiles without

10 visiting many dealers. Hence, such technique is convenient for the customer and allows dealers to make efficient business activities.

     However, the technique of Japanese Patent Laid-Open No. 7-199820 makes only on-line virtual

15 exhibition of automobiles. It does not disclose about providing on-line status information, from when the virtual exhibition is made until the automobile is delivered, to the user.

     Also, Japanese Patent Laid-Open No. 5-274326 can

20 make external output, estimation, shipping inquiry, order reception process, and the like of a special article using information stored in a database. However, it does not disclose about providing on-line status information, from when the order reception

25 process and the like is made until the automobile is delivered, to the user.

A purchasing process itself, i.e., from selection until actual order of an article to be purchased, is fun for general customers. However, the above prior arts or other conventional systems cannot satisfy customer's (user's) expectation upon purchasing an automobile from when the customer has made purchase contract until the automobile is actually delivered, and a new scheme (entertainability) that can satisfy the customer's expectation is demanded.

SUMMARY OF THE INVENTION

The present invention has been proposed to solve the conventional problems, and has as its object to provide a vehicle information providing apparatus, vehicle information providing system, vehicle information providing method, a computer program, and a computer readable storage medium which provide to the user progress status, with entertainability, of a specific vehicle until shipping.

In order to achieve the above object, a vehicle information providing apparatus according to the present invention is characterized by the following arrangement.

That is, a vehicle information providing apparatus comprises information acquisition means (information acquisition function: M7, Figs. 36 to 38) for accessing a storage device (32) and acquiring

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information associated with progress status of a
plurality of vehicles before shipping, which
information is stored in the storage device; and
information providing means (information providing

5   function: M7, Figs. 36 to 38) for, by controlling the
information acquisition means to refer to the storage
device by using an identification information as a key,
acquiring information associated with progress status
of a specific vehicle corresponding to the

10   identification information, the identification
information which is acquired from an information
terminal (5) that is connected via a communication line
to allow two-way communications and specifies a user of
the information terminal or a vehicle, and for

15   providing the acquired information to the information
terminal from which the identification information was
output.

     With the above apparatus arrangement, a vehicle
information providing apparatus with entertainability,

20   which provides the progress status of a specific
vehicle until shipping can be realized. That is, the
user can recognize respective stages until shipping of
the ordered specific vehicle on his or her information
terminal such as a computer or the like, and

25   expectation of the user who is looking forward to
delivery can be satisfied.

In a preferred embodiment, the information associated with progress status of the vehicle contains

•an image (Figs. 22, 43, 44) that represents situations in a plurality of stages until the specific

5   vehicle is shipped,

•a photographed image (e.g., a still or video image: Fig. 39) of the specific vehicle under assembly in an assembly line of a vehicle manufacturer, or

•an image (Figs. 41, 42) or coordinate position

10   information which indicates a transportation route and/or a current position upon transportation of the specific vehicle which has undergone assembly in a vehicle manufacturer. In this case, the user can easily recognize respective stages until shipping of

15   the ordered specific vehicle by means of photographed images under assembly, and images that contain the transportation route and/or the current position upon transportation, and expectation to shipping and entertainment until shipping can be improved.

20   In each of the above apparatus arrangements, preferably, the information providing means provides the information associated with progress status of the vehicle to the information terminal, from which the identification information was output, in response to

25   acquisition of the identification information or at a predetermined timing. In this way, the user's convenience can be improved.

For example, the information associated with
progress status of the vehicle contains a scheduled
assembly time of the specific vehicle in an assembly
line of a vehicle manufacturer, and the information
5   providing means informs a user, who waits for delivery
of the specific vehicle, of the scheduled assembly time
of the specific vehicle prior to that scheduled
assembly time, and provides a photographed image
(Figs. 43, 44) of the specific vehicle under assembly
10   in the assembly line to the information terminal from
which the identification information was output when
the scheduled assembly time has been reached. In this
manner, the user can visually recognize the actual
assembly process of the specific vehicle that he or she
15   ordered, thus improving expectation to shipping and
entertainment until shipping.

In a preferred embodiment, when the information
acquisition means recognizes that the information
associated with progress status of the plurality of
20   vehicles, which information is stored in the storage
device, has been updated by information associated with
a change in shipping date, the information providing
means specifies a specific vehicle, the shipping date
of which has been changed, in accordance with the
25   identification information, and informs an information
terminal specified by the identification information of
the change in shipping date of the specific vehicle.

With this arrangement, for example, the user can be efficiently informed of the settled shipping date or a change in shipping date (e.g., a delay of shipping date) via, e.g., an e-mail message.

5   In case that the communication line includes an Internet, the information providing means preferably provides information (more specifically, update history information or the like) associated with progress status of the specific vehicle to the information

10   terminal as a data file of a Web page described in a predetermined data format. In this way, respective stages until shipping of the specific vehicle that the user ordered can be easily informed using the Internet, which is prevalent today.

15   In a preferred embodiment, the information associated with progress status of the vehicle, which is acquired by the information acquisition means contains

•photographed images of at least all vehicles

20   which are under assembly in the assembly line of the vehicle manufacturer and are customizable as the specific vehicle, or

•time information upon completion of assembly of the specific vehicle in the assembly line of the

25   vehicle manufacturer (see the lower right portion of Fig. 43).

For example, the information acquisition means
preferably composites a name of a purchaser of the
specific vehicle to the photographed image (see the
lower left portion of Fig. 43).

5   More specifically, when the progress status of
each stage until shipping of the specific vehicle is
provided to a purchaser (user of the information
terminal) using photographed images, the assembly
states of that specific vehicle must be photographed in
10   turn in the assembly line, while another vehicle which
is under assembly in the assembly line and is
customizable as the specific vehicle may be assigned
(reserved) as the specific vehicle according to the
order so as to assure a short shipping term. In this
15   case, photographed images of that vehicle before it was
ordered as the specific vehicle are often not available.
However, according to the above apparatus arrangement,
since photographed images of all vehicles that are
customizable as the specific vehicle are prepared as
20   information which pertains to the progress status of a
vehicle, photographed images before assignment
corresponding to the ordered specific vehicle are
acquired from those of the vehicles, thus providing the
photographed images of respective stages from the
25   beginning of assembly to finishing to the purchaser of
the ordered specific vehicle, and allowing that
purchaser to enjoy the processes themselves until

shipping. Since the purchaser of the specific vehicle

can recognize the time of completion of assembly of the

ordered specific vehicle, his or her expectation to

shipping can be enhanced. Since the name of the

5   purchaser of the specific vehicle is composited on the

photographed images, expectation to shipping of that

purchaser can be enhanced.

Preferably, when the information which contains

an image of the specific vehicle and is associated with

10   progress status of the vehicle is provided as a pay

service to a purchaser of the specific vehicle,

production of the specific vehicle starts after a

purchaser has subscribed to the pay service.

More specifically, in case that a vehicle which

15   is under assembly and is customizable as the specific

vehicle is assigned to the specific vehicle according

to the order, photographed images of that vehicle

before it was ordered as the specific vehicle are often

not available. By contrast, according to the above

20   apparatus arrangement, photographed images of

respective stages from the initial stage of assembly

(an unpainted stage before principal components which

form a body are assembled) until finishing (e.g.,

shipping) can be provided to a purchaser who subscribed

25   to a pay service, and expectation to shipping of that

purchaser can be enhanced. In this case, an additional

job for adjusting the production plan of the assembly

line is generated for the vehicle manufacturer to provide photographed images in respective stages of production in nearly real time, but the value received for that job is provided by additional cost received

5 from the purchaser as a pay service, and it is a reasonable business option.

Preferably, the information which contains an image of the specific vehicle and is associated with progress status of the vehicle contains names and/or

10 photos of operators who participate in a plurality of stages until the specific vehicle is shipped. In this way, since the purchaser of the specific vehicle can recognize operators who are concerned in a plurality of stages until the ordered specific vehicle is shipped by

15 means of their names and/or photos, the sense of responsibility on jobs can be enhanced on the part of these operators. Also, on the part of the purchaser, expectation to shipping, and confidence and attachment to the delivered specific vehicle can be enhanced.

20 In a preferred embodiment, when the apparatus further comprises assembly schedule adjustment means for, when the specific vehicle is assembled in an assembly line of a vehicle manufacturer, adjusting a schedule of the assembly line or requesting an external

25 device that manages the assembly line to adjust a schedule, so as to allow the user to participate in a predetermined assembly process, the information

providing means informs the user of a schedule that allows the user to participate in the predetermined assembly process as the adjustment result by the schedule adjustment means.

5   Preferably, when the schedule adjustment means has adjusted the schedule, as described above, the information providing means provides a man-machine interface (Fig. 39), which allows the user to make the predetermined assembly process by remote control while

10   observing a display image obtained by photographing a state of the assembly process, to the information terminal connected via the communication line to allow two-way communications.

That is, according to the above apparatus

15   arrangement, since the purchaser of the specific vehicle can make predetermined assembly operation by himself or herself by remote control using the provided man-machine interface, he or she can enjoy the processes themselves until shipping, and expectation to

20   shipping, and attachment to the delivered specific vehicle can be enhanced.

Preferably, when a special situation falling outside a plurality of predetermined stages until the specific vehicle is shipped has occurred (e.g., air

25   transportation of principal components), the information providing means provides information associated with the special situation to the

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information terminal. For example, if a principal
component such as an engine or the like is transported
by air, the purchaser of the specific vehicle can
recognize such situation by the window, as shown in,
5   e.g., Fig. 41, he or she can enjoy the processes
themselves until shipping, and expectation to shipping,
and attachment to the delivered specific vehicle can be
enhanced.

Preferably, the information providing means
10   provides gathering situation of components required to
build the specific vehicle to a vehicle manufacturer
with the user being able to recognize the gathering
status on a map displayed on the information terminal
in nearly real time. In this way, since the purchaser
15   of the specific vehicle can recognize the gathering
state of components required to build the ordered
specific vehicle to the vehicle manufacturer by the map
displayed using the window shown in, e.g., Fig. 41 on
the information terminal, he or she can enjoy the
20   processes themselves until shipping, and expectation to
shipping can be enhanced.

In a preferred embodiment, when a plurality of
photographing devices (14) are arranged in the assembly
line of the vehicle manufacturer to photograph a
25   vehicle in a plurality of stages in assembly, the
information providing means provides a man-machine
interface (Fig. 39) which can select a desired one of

the plurality of photographing devices to the
information terminal of a purchaser of the specific
vehicle, which is connected via the communication line
to allow two-way communications. In this case,
5   preferably, the man-machine interface can adjust a
photographing state of the selected photographing
device by remote control from the information terminal.

That is, according to the above apparatus
arrangement, since the purchaser of the specific
10   vehicle can watch the assembly process of the specific
vehicle he or she ordered in a desired photographing
state corresponding to his or her remote control using
the information terminal, he or she can enjoy the
processes themselves until shipping, and expectation to
15   shipping can be enhanced.

Note that the above object can also be achieved
by a program code that makes a computer implement the
information providing apparatus, a computer readable
storage medium which stores that program code, a
20   vehicle information providing system which comprises
the information providing apparatus and an information
terminal, and a vehicle information providing method
corresponding to that system.

Other features and advantages of the present
25   invention will be apparent from the following
description taken in conjunction with the accompanying
drawings, in which like reference characters designate

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the same or similar parts throughout the figures
thereof.

BRIEF DESCRIPTION OF THE DRAWINGS

5   The accompanying drawings, which are incorporated
in and constitute a part of the specification,
illustrate embodiments of the invention and, together
with the description, serve to explain the principles
of the invention.

10   Fig. 1 is a schematic diagram showing the overall
arrangement of a custom vehicle estimation/ordering
system in an embodiment of the present invention;

Fig. 2 is a block diagram showing an example of
the internal arrangement of a vehicle manufacturer

15   server 1, dealer server 2, and user terminal 5 in the
embodiment of the present invention;

Fig. 3 is a block diagram showing a functional
system of processing modules executed in the custom
vehicle estimation/ordering system according to the

20   embodiment of the present invention;

Fig. 4 is a chart showing transition of display
windows in an initial process (M1) and vehicle
customize process (M2);

Fig. 5 is a chart showing transition of display

25   windows in an estimation/evaluation request process
(M3) and an e-mail sending function upon issuing an
estimation/evaluation request;

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Fig. 6 is a chart showing transition of display windows in an estimation item confirm process (M4);

Fig. 7 is a chart showing transition of display windows in a credit screening process (M5) and a

5 negotiation application process (M6), and an e-mail sending function upon credit screening and negotiation application;

Fig. 8 is a chart showing transition of display windows in a shipping query process (M7) and

10 instruction process (M8) and an e-mail sending function upon issuing a shipping query;

Fig. 9 is a system chart showing limitations on choices which are referred to upon selecting a mechanism of vehicle type A (sport type) in the vehicle

15 customize process (M2);

Fig. 10 is a system chart showing limitations on choices which are referred to upon selecting an interior of vehicle type A (sport type) in the vehicle customize process (M2);

20 Fig. 11 is a system chart showing limitations on choices which are referred to upon selecting an audio system of vehicle type A (sport type) in the vehicle customize process (M2);

Fig. 12 is a system chart showing limitations on

25 choices which are referred to upon selecting a mechanism of vehicle type B (wagon type) in the vehicle customize process (M2);

Fig. 13 is a system chart showing limitations on choices which are referred to upon selecting an interior of vehicle type B (wagon type) in the vehicle customize process (M2);

5   Fig. 14 is a system chart showing limitations on choices which are referred to upon selecting an exterior of vehicle type B (wagon type) in the vehicle customize process (M2);

Fig. 15 is a flow chart of software executed by 10   the user terminal 5 that receives services from the vehicle manufacturer server 1 in the embodiment of the present invention;

Fig. 16 is a flow chart showing a window display process common to respective processing modules 15   executed by the vehicle manufacturer server 1 in the embodiment of the present invention;

Fig. 17 is a flow chart showing an outline of the overall process executed by the vehicle manufacturer server 1 in the embodiment of the present invention;

20   Fig. 18 is a flow chart showing the estimation/evaluation request process (M3) executed by the vehicle manufacturer server 1;

Fig. 19 is a flow chart showing the estimation item confirm process (M4) executed by the vehicle 25   manufacturer server 1;

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Fig. 20 is a flow chart showing the control process executed by the dealer server 2 in the embodiment of the present invention;

Fig. 21 is a flow chart showing the shipping query process (M7) executed by the vehicle manufacturer server 1;

Fig. 22 shows an example of a shipping status query window G-2 in the embodiment of the present invention;

Fig. 23 shows an example of a top window A-1 as a home page window in the embodiment of the present invention;

Fig. 24 shows an example of a home window A-2 in the embodiment of the present invention;

Fig. 25 shows an example of the format of vehicle customize window (B-1 to B-15) displayed in the vehicle customize process (M2);

Fig. 26 shows an example of an account window of a manufacturer's suggested retail price displayed upon operation of an "account" button shown in Fig. 25;

Fig. 27 shows an example of a selected specification display window B-15 displayed in the vehicle customize process (M2);

Fig. 28 shows an example of an estimation demand top window in the embodiment of the present invention;

Fig. 29 shows an example of an evaluation application input window C-1 in the embodiment of the present invention;

Fig. 30 shows an example of an ID/password input window D-1 in the embodiment of the present invention;

Fig. 31 shows an example of a purchase review information list window D-2 in the embodiment of the present invention;

Fig. 32 shows an example of an estimation item confirm window D-3 in the embodiment of the present invention;

Fig. 33 shows an example of a loan condition input window E-1 in the embodiment of the present invention;

Fig. 34 shows an example of a payment plan display window E-2 in the embodiment of the present invention;

Fig. 35 shows an example of a negotiation application input window F-1 in the embodiment of the present invention;

Fig. 36 is a flow chart showing the progress status management process executed by the vehicle manufacturer server 1;

Fig. 37 is a flow chart showing the progress status management process executed by the vehicle manufacturer server 1;

Fig. 38 is a flow chart showing the progress status management process executed by the vehicle manufacturer server 1;

Fig. 39 shows an example of an operation window used to remote-control assembly operation in a predetermined assembly participation process in an assembly line 13;

Fig. 40 is a view for explaining the predetermined assembly participation process juxtaposed in the assembly line 13;

Fig. 41 shows an example of window for informing the purchaser of the locations of components required to assemble a custom vehicle;

Fig. 42 shows an example of a transportation status display window of a custom vehicle;

Fig. 43 shows an example of a production status display window; and

Fig. 44 shows an example of a display window which includes a photographed image of one process and an operation window of a photographing device 14.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

A preferred embodiment in which the present invention is applied to an estimation/ordering system of a custom vehicle (specific vehicle) of an automobile as a representative vehicle will be described in detail hereinafter with reference to the accompanying drawings.

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In this embodiment, a custom vehicle is a vehicle for which the user (customer) himself or herself has desirably customized a plurality of predetermined items on the basis of a standard vehicle (base vehicle) that comprises predetermined specifications/equipment using the system of the present invention. That is, the system according to this embodiment is an automobile estimation/ordering system that allows the user (customer) himself or herself to desirably customize a plurality of items set in advance on the basis of a standard vehicle (base vehicle) that comprises predetermined specifications/equipment, and such customized vehicle will be referred to as a custom vehicle.

[Overall Hardware Arrangement]

Fig. 1 is a schematic diagram showing the overall arrangement of a custom vehicle estimation/ordering system in this embodiment.

Referring to Fig. 1, reference numeral 1 denotes a server computer for a vehicle manufacturer, which manufactures a custom vehicle, which is customized and ordered by the custom vehicle estimation/ordering system according to this embodiment. The server computer 1 mainly serves as an application server for a user terminal 5. This server computer may be equipped in the vehicle manufacturer or may be managed by a third party for that vehicle manufacturer (in this

embodiment, this server computer will be referred to as a vehicle manufacturer server hereinafter).

The vehicle manufacturer server 1 can access a manufacturer's suggested retail price database (DB) 31 and a progress management DB 32 by a general scheme as needed during its operation. The manufacturer's suggested retail price DB 31 pre-stores retail prices suggested by the vehicle manufacturer (to be referred to as manufacturer's suggested retail prices hereinafter) for respective specification items as possible choices for a custom vehicle in this system in association with identification information that specifies each specification item (the progress management DB 32 will be described later).

Reference numeral 2 denotes a server computer which determines an estimated price of a given automobile, so as to actually sell that automobile, the specifications of which are determined using the custom vehicle estimation/ordering system according to this embodiment. The server computer 2 may be present in the vehicle manufacturer, may be present in a dealer which sells automobiles of the vehicle manufacturer, or may be managed by a third party for that vehicle manufacturer (in this embodiment, this server computer will be referred to as a dealer server hereinafter).

The dealer server 2 can access the manufacturer's suggested retail price DB 31 by a general scheme as

needed during its operation, and can acquire
manufacturer's suggested retail prices for respective
specification items, which are pre-stored in the
manufacturer's suggested retail price DB 31 together
5   with identification information for each specification
item, and store them in an estimated price DB 35.

The user of the dealer server 2 sets estimated
prices of specification items, which are to be
automatically presented to respective users when the
10   dealer sells the specification items, with reference to
the manufacturer's suggested retail prices for
respective specification items stored in the estimated
price DB 35. Note that the operation of the dealer
server 2 will be described later with reference to
15   Fig. 20.

Note that it is difficult for the user of the
dealer server 2 to actually set estimated prices of a
huge number of specification items set by the vehicle
manufacturer in the server. Hence, in a preferred
20   embodiment, when discounts (%) for manufacturer's
suggested retail prices of a plurality of specification
items selected by the user of the dealer server 2 are
input, the discounted estimated prices of these
specification items are automatically set.

25   In this embodiment, when a plurality of dealers
are present, a given dealer can access the estimated
price DB 35 managed by itself, and can refer to and

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change the registered contents. However, in order to
guarantee the autonomy and independency of sales
business operations by respective dealers, a given
dealer cannot refer to or change the contents of an
5   estimated price DB 35 managed by another dealer using a
general security function.

In this embodiment, the vehicle manufacturer
server 1 cannot refer to or change the estimated prices
of respective specification items, which are set in the
10   estimated price DB 35 equipped in the dealer, so as not
to influence sales business operations and estimated
prices of the dealer (i.e., to guarantee the
independency of sales business operations of the
dealer).

15   Even when the estimated price DB 35 is equipped
in the vehicle manufacturer (e.g., in a storage device
(database) connected to the vehicle manufacturer server
1), the vehicle manufacturer cannot refer to or change
the estimated prices in the estimated price DB 35 so as
20   to guarantee the independency of sales business
operations by respective dealers. When the estimated
price of a vehicle that has already been customized is
calculated by the vehicle manufacturer server 1, the
server 1 must be able to only refer to the contents of
25   the estimated price DB 35.

More specifically, the dealer purchases articles
from the vehicle manufacturer and brand manufacturers

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of various decoration parts, audio products, and the like, sets sales prices (so-called resale prices) of purchased articles, and sells them to customers. Upon selling, an act of interfering with the sales prices of

5 articles by the manufacturer as a supplier constitutes violation of the principle of free competition on the market. Likewise, upon presenting the estimated price per custom vehicle to a customer, an act of interfering with that estimated price by the vehicle manufacturer

10 and an act of interfering with estimated prices for respective specification items by the vehicle manufacturer, which are stored in the estimated price DB 35, based on which the estimated price per custom vehicle is calculated, constitute violation of the

15 principle of free competition on the market.

Hence, in this embodiment, the estimated prices stored in the estimated price DB 35 (or storage area) prepared for each dealer can be referred to/updated by only the corresponding dealer server 2, and cannot be

20 referred to (browsed)/changed by the vehicle manufacturer server 1 alone. Such arrangement of the estimated price DB 35 is satisfied irrespective of whether the estimated price DB 35 is present either inside or outside the vehicle manufacturer server 1.

25 When the aforementioned system arrangement is adopted, practice of the system of this embodiment can be started with minimum time and cost without preparing

for special hardware and software on the dealer side, and system management after the beginning of operation is easy.

Reference numeral 3 denotes the Internet as a typical communication line. Reference numeral 5 denotes a user terminal such as a personal computer, portable information terminal, portable phone, or the like.

Reference numeral 11 denotes a carrier vehicle that carries custom vehicles delivered from the vehicle manufacturer. The carrier vehicle (including transportations such as ships, railways, and the like in this embodiment) 11 mounts a GPS communication module 12 which detects the current position of the carrier vehicle 11 and externally outputs the detected current position.

Reference numeral 13 denotes an assembly line (production line) in which at least a custom vehicle is manufactured in the vehicle manufacturer. The assembly state of the custom vehicle is photographed by a photographing device 14 such as a video camera, digital camera, or the like arranged near the assembly line 13, and the photographed video or still image is stored in the progress management DB 32 (to be described in detail later).

In the above arrangement, the user terminal 5, the vehicle manufacturer server 1, and the dealer

server 2 can make two-way communications according to a general communication scheme via the Internet 3 so as to exchange information that pertains to estimation/ordering of a custom vehicle (to be

5 described later). At this time, when the user terminal 5 is a personal computer, a telephone line or the like is used via a provider (Internet provider) 4. When the user terminal 5 is a portable information terminal or portable phone, a public wireless telephone line or the

10 like is used via a base station 8. Such communication means themselves adopt conventional arrangements, and a detailed description thereof in this embodiment will be omitted.

The current position of the carrier vehicle 11

15 detected by the GPS communication module 12 is sent along the Internet 3 via a communication satellite 10 and the base station 9, and is then stored in the progress server DB 32 by the vehicle manufacturer server 1. In this case as well, such communication

20 means themselves adopt conventional arrangements, and a detailed description thereof in this embodiment will be omitted.

Fig. 2 is a block diagram showing an example of the internal arrangement of the vehicle manufacturer

25 server 1, the dealer server 2, and the user terminal 5 in this embodiment.

Referring to Fig. 2, reference numeral 22 denotes a display such as a liquid crystal display or the like; and 23, a keyboard as input means. Reference numeral 24 denotes a ROM that stores a boot program and the

5   like. Reference numeral 25 denotes a RAM that temporarily stores various processing results. Reference numeral 26 denotes a storage device such as a hard disk drive (HDD) for storing a program and the like. Reference numeral 27 denotes a communication

10   interface, which is used to communicate with an external apparatus via a communication line 30 (the Internet 3 and the like in this embodiment), and comprises a modem or TA when the user terminal 5 is a computer or a wireless transceiver when the user

15   terminal 5 is a portable information terminal or portable phone. Reference numeral 28 denotes a pointing device such as a mouse or the like. These building components are connected via an internal bus 29, and a CPU (central processing unit) 21 controls the

20   overall apparatus in accordance with the program stored in the storage device 26. In this embodiment, the display 22, keyboard 23, and pointing device 28 provide to the user a so-called man-machine interface on each display window (to be described later).

25   In this embodiment, the vehicle manufacturer server 1, the dealer server 2, and the user terminal 5 have software (software program) of a general

communication protocol, which can make Internet
communications, an Internet browser function and mailer
function that exchange data via the Internet 3 in
accordance with that software, and general software
5   that renders the browser.

When the CPU 21 executes such software as needed,
the vehicle manufacturer server 1 and the user terminal
5 form a so-called server-client environment while the
user terminal 5 establishes connection to (logs into)
10   the vehicle manufacturer server 1 via the Internet 3.
[Functional System of Custom Vehicle
Estimation/ordering System]

Fig. 3 shows the functional system of process
modules executed in the custom vehicle
15   estimation/ordering system according to this embodiment.
Each block shown in Fig. 3 is one unit of software,
which is executed by the CPU 21 of the vehicle
manufacturer server 1 and is roughly classified into
respective functions (to be described later). In this
20   embodiment, such processing unit is called a processing
module. These processing modules are pre-stored in the
storage device 26 or the like of the vehicle
manufacturer server 1.

The functions of the respective processing
25   modules will be briefly explained below.

•Initial process (M1): This module displays the
top window (home page) of the custom vehicle

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estimation/ordering system on the user terminal, and allows jumps to other windows for customizing a custom vehicle, sending an estimation request, and so forth.

•Vehicle customize process (Vehicle

5 specifications selecting process) (M2): This module provides to the user terminal 5 an environment that can select a desired custom vehicle by repeating operations for selecting desired specifications from choices prepared in advance for a given vehicle type of

10 automobile that the user (customer) of the user terminal 5 is seeing about purchasing. Furthermore, when the specifications of the custom vehicle are settled, this module allows jump to an estimation/evaluation request process (M3).

15 •Estimation/evaluation request process (M3): This module provides an environment that allows the user who has settled the specifications of his or her custom vehicle to issue an estimation request of the sales price of that custom vehicle, and to issue an

20 evaluation request of his or her vehicle as a trade-in to the dealer if he or she wants, and sends such request to the designated dealer.

•Estimation item confirm process (M4): When the user of the user terminal 5 is a customer to whom the

25 estimated price of the custom vehicle, the desired specifications of which were settled, has been presented, this module provides information such as the

history of estimated prices presented so far, a specification list, and the like to that user, and allows jumps to other windows for credit screening when that user wants to purchase the custom vehicle on

5   installment, for applying for a negotiation to actually order the vehicle, and so forth.

•Credit screening process (M5): When the user (customer) wants to purchase the custom vehicle, the specifications of which have been settled, on

10   installment, this module requests a credit company to make credit screening based on the condition input by the user.

•Negotiation application process (M6): When the user (customer) wants to proceed with a negotiation for

15   actual purchase of the custom vehicle, the specifications of which have been settled, this module sends that message to the dealer.

•Shipping query process (M7): This module informs the user (customer) who ordered the custom

20   vehicle of shipping status until that custom vehicle can be delivered in practice, and the shipping date.

•Instruction process (M8): This module provides instructions about the use method and functions of the custom vehicle estimation/ordering system to the user

25   (customer).

According to the custom vehicle estimation/ordering system described in this embodiment,

the aforementioned processing modules (to be described later with reference to the flow charts shown in Figs. 16 to 21) by the vehicle manufacturer server 1, and software of the flow chart shown in Fig. 15 is executed on the user terminal 5 as basic software for displaying various windows on the display 22 of the user terminal 5, thus providing a man-machine interface by means of display of various windows shown in Figs. 4 to 8 (Figs. 22 to 35) on the display 22 of the user terminal 5. Using such man-machine interface, the user (customer) of the user terminal 5 can make customization, estimation, ordering, and the like of a desired custom vehicle.

[Software Executed by User Terminal 5]

Software which is executed by the CPU 21 of the user terminal 5 to display various windows will be described below.

Fig. 15 is a flow chart of software executed by the user terminal 5 that receives services of the vehicle manufacturer server 1 in this embodiment.

The storage device 26 of the user terminal 5 pre-stores a browser program, as described above. The user launches the browser program in a predetermined procedure (i.e., loads the browser program in the storage device 26 onto the RAM 25 and executes the loaded program by the CPU 21) so as to link his or her terminal as a client with the custom vehicle

estimation/ordering system that the CPU 21 of the vehicle manufacturer server 1 can execute, and inputs a predetermined URL in a predetermined area of the launched browser. After link to the custom vehicle estimation/ordering system is established via the Internet 3, the CPU 21 of the user terminal 5 starts processes in step S1 and subsequent steps.

Step S1 in Fig. 15: Display window data and the like of a home page (HP) are received from a link destination site (vehicle manufacturer server 1) to the RAM 25 via the communication interface 27. This embodiment adopts a general HTML (Hyper Text Markup Language) as an example of the Web page description language.

Step S2: A window is displayed on the display 22 in accordance with the display window data, data to be embedded in that display window, and the like, which are received from the vehicle manufacturer server 1.

Step S3: It is detected if key input of numerical values and the like from the keyboard 23 and/or pointing operation by the pointing device 28 are/is made.

Step S4: If YES (input operation is detected) in step S3, data of a predetermined input item and/or data according to the pointing operation with respect to the window displayed on the display 22 are/is sent to the

vehicle manufacturer server 1 via the communication
interface 27.

Step S5: It is checked if predetermined input
operation indicating an end instruction of the browser
5 is made. If NO (no end instruction is detected) in
step S5, the flow returns to step S2. On the other
hand, if YES (end instruction is detected) in step S5,
the browser program is ended, and the area of the RAM
25 where that program resided is released.

10 [Software Executed by Vehicle Manufacturer Server 1]

Software to be executed by the CPU 21 of the
vehicle manufacturer server 1 will be explained below.
In the following description, a window display process
common to the aforementioned processing modules will be
15 explained first with reference to the flow chart shown
in Fig. 16, and state transition among the respective
processing modules will then be explained with
reference to the flow chart shown in Fig. 17.
Furthermore, transition of the display windows in the
20 respective processing modules will be explained with
reference to Figs. 4 to 8.

(1) Window display process common to respective
processing modules

Fig. 16 is a flow chart showing a window display
25 process common to the respective processing modules
executed by the vehicle manufacturer server 1 in this
embodiment. This process is done to display a window

according to user's input operation on the display 22
of the user terminal 5, which has logged into the
vehicle manufacturer server 1. This process is started
by the CPU 21 of the vehicle manufacturer server 1 in
5   response to a change in function to be used by
predetermined operation of the user at the user
terminal 5 on each display window (to be described
later).

Step S31 in Fig. 16: Data of items required for
10   a top window (i.e., a top window corresponding to a
function designated by predetermined operation) to be
displayed on the user terminal 5 are read out from the
storage device 26 of the vehicle manufacturer server 1.

Step S32: Display window data of the top window
15   to be displayed and the data read out from the storage
device 26 in step S31 are sent to the user terminal 5,
which has logged into the server 1, via the Internet 3.
At this time, the CPU 21 of the user terminal 5 which
received these display window data and the like
20   interprets the received display window data and the
like by the currently running browser function, and
displays the top window on the display 22 in accordance
with the interpretation result.

Step S33: It is detected if data indicating the
25   end of use of this system is received. If YES
(received) in step S33, the processing is canceled.

Step S34: If NO (not received) in step S33, it is detected if data indicating that a software button (to be simply referred to as a button hereinafter) (including an icon) has been pressed (clicked) on the window currently displayed on the user terminal is received via the Internet 3. If NO (not received) in step S34, the flow returns to step S33.

Step S35: If YES (received) in step S34, it is checked if the clicked button is a one for selecting a function different from that available for the user on the currently displayed window. If YES (indicating a different function) in step S35, the flow returns to step S31. On the other hand, if NO (not a different function), the flow advances to step S357.

Step S36: If NO (not received) in step S33, data received via the Internet 3 is written in (also to update the stored data) and/or new data is read out from the storage device 26 or progress management DB 32 of the vehicle manufacturer server 1 in response to user's operation input on the window currently displayed on the user terminal 5.

Step S37: The data read out in step S36 and display window data indicating a window used to display that data are sent to the user terminal 5 that has logged in via the Internet 3 as needed, and the flow returns to step S33. At this time, the CPU 21 of the user terminal 5, which received these display window

data and the like as in step S32, displays a window

depending from the top window displayed so far, display

a new window on a portion of the currently displayed

window, and so forth.

5   (2) State transition among respective processing

modules

Fig. 17 is a flow chart showing an outline of the

overall process executed by the vehicle manufacturer

server 1 in this embodiment.

10   The processing modules M1 to M8 executed by the

vehicle manufacturer server 1 have a function of

displaying various windows (to be described later) on

the display 22 of the user terminal 5, and implementing

input operations on the displayed windows, and

15   transition of the display windows in these processing

modules will be described later with reference to

Figs. 4 to 8.

Steps S11 and S12 in Fig. 17: When the user

terminal 5 has been linked to the site of this system

20   via the Internet 3, the initial process (M1) is

executed (step S11), and it is checked if launch

request data of another process is received from the

user terminal 5 during the initial process (M1) (step

S12). If YES in step S12, the flow advances to step

25   S16, S21, or S22 depending on the data received;

otherwise, the flow advances to step S23.

Steps S13 to S15: The vehicle customize process
(M2) is executed (step S13), and it is checked if
launch request data of the estimation/evaluation
request process (M3) is received from the user terminal
5   5 during the vehicle customize process (M2) (step S14).
If YES in step S14, the estimation/evaluation request
process (M3) is executed (step S15).

Steps S16 to S20: The estimation item confirm
process (M4) is executed (step S16), and it is checked
10   if launch request data of the credit screening process
(M5) or the negotiation application process (M6) is
received from the user terminal 5 during the estimation
item confirm process (M4) (step S17 or S19). If YES in
step S17 or S19, the credit screening process (M5) or
15   the negotiation application process (M6) is executed
depending on the received data (step S18 or S20).

Step S22: The instruction process (M8) is
executed.

Steps S23 and S24: It is checked if data
20   indicating the end of use of this system is received
from the user terminal 5 during execution of the
aforementioned processing module (step S23). If YES in
step S23, the processing of the processing module,
which is running, is canceled (step S24); otherwise,
25   the flow returns to step S12.

(3) Transition of display windows in respective
processing modules

Transition of the display windows in the eight
different processing modules which have been briefly
explained above will be described below with reference
to Figs. 4 to 8. The relationship of state transition
among the processing modules indicated by broken line
blocks in Figs. 4 to 8 follow the functional system
mentioned above with reference to Fig. 3.

<Initial Process (M1), Vehicle Customize Process (M2)>

Fig. 4 shows transition of the display windows in
the initial process (M1) and vehicle customize process
(M2).

Referring to Fig. 4, the initial process (M1)
displays a top window A-1 (Fig. 23) as a home page
window of this system. The top window A-1 exemplified
in Fig. 23 includes an "Enter" button to be operated by
the user (i.e., the user who has been linked to the
vehicle manufacturer server 1 via the Internet 3) who
wants to use this system that allows customization,
estimation, ordering, and the like of a custom vehicle.
If the user has operated this "Enter" button, the
initial process (M1) displays a home window A-2
(Fig. 24) of this system on the user terminal 5.

Fig. 24 shows an example of the home window A-2
displayed by the initial process (M1).

The display window shown in Fig. 24 includes a
plurality of operation buttons. If the user has
operated an operation button "about this site" or

"purchase procedure", a predetermined instruction

window pops up on the user terminal 5 by the function

of the instruction process (M8) (to be described later).

On the other hand, if the user has operated an

5   operation button "purchase review list", the function

of the estimation item confirm process (M4) (to be

described later) is provided to the user terminal 5.

If the user has operated an operation button "ordered

vehicle shipping query", the function of the shipping

10   query process (M7) is provided to the user terminal 5.

       If the user has clicked a photo of vehicle type A

as sport type or vehicle type B as wagon type on the

home window A-2, the function of the vehicle customize

process (M2) is provided to the user terminal 5.

15   In this embodiment, the vehicle customize process

(M2) allows the user to customize vehicles of two

different vehicle types, i.e., vehicle type A (sport

type) and vehicle type B (wagon type) for the sake of

simplicity.

20   When the user has selected the desired vehicle

type on the home window A-2, the user himself or

herself can perform processes from desired

customization of a plurality of predetermined items to

settlement of a customized vehicle on the basis of a

25   standard vehicle (base vehicle) of the selected vehicle

type. In other words, various specifications

(equipment) set in advance in the system as a standard

vehicle are replaced by other specifications
(equipment) or new equipment (optional equipment) which
is not set for the standard vehicle is added by user's
customize operations.

5   Fig. 25 shows an example of the format of a
vehicle customize window (B-1 to B15) displayed by the
vehicle customize process (M2). The basic format of
this window is basically common to an
engine/transmission select window (B-1 and B-8),
10   tire/wheel select window (B-2 and B-9), interior select
window (B-3 and B-10), audio select window (B-4 and
B-11), body color select window (B-5 and B-12), and
decoration parts select window (B-6 and B-13).

Since details of the arrangements of these
15   vehicle customize windows are not essential to the
present specification, a detailed description and
illustration thereof will be omitted, but the functions
of the respective windows will be briefly explained.

Engine/transmission select window (B-1, B-8): On
20   this window, the user of the user terminal 5 can select
a desired combination of engine and transmission from a
plurality of different combinations of engines and
transmissions that can be mounted for the desired
vehicle type previously selected on the home window A-2.

25   Tire/wheel select window (B-2, B-9): This window
is displayed in correspondence with the combination of
engine and transmission previously selected on the

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engine/transmission select window (B-1, B-8). The user
of the user terminal 5 can select a desired combination
from a plurality of different combinations of tires and
wheels presented as choices on this window.

5   Furthermore, the user can also select optional
equipment such as an anti-lock brake system (ABS),
torque sensing (TORSEN) LSD, and the like depending on
the vehicle type of his or her choice.

Interior select window (B-3, B-10): On this
10 window, the user of the user terminal 5 can select a
desired interior from a plurality of different
interiors for the desired vehicle type selected on the
home window A-2.

Audio select window (B-4, B-11): On this window,
15 the user of the user terminal 5 can select a desired
one of a plurality of different audio systems available
for the desired vehicle type selected on the home
window A-2.

Body color select window (B-5, B-12): On this
20 window, the user of the user terminal 5 can select a
desired one of a plurality of different body colors
available for the desired vehicle type selected on the
home window A-2.

Decoration parts select window (B-6, B-13): On
25 this window, the user of the user terminal 5 can select
desired ones of a plurality of different decoration

parts available for the desired vehicle type selected on the home window A-2.

Note that decoration parts as so-called dealer options generally have physical limitations (e.g., a shape, mounting space, and the like) on an automobile assembled in the vehicle manufacturer. Hence, upon selecting decoration parts as such dealer options in this system, parts to be displayed as choices on the decoration parts select window (B-6, B-13) must be limited in correspondence with the specification items that have already been selected on the previous windows.

On the upper half region of these vehicle customize windows, photos of the vehicle type selected on the home window A-2 and its interior, "ZOOM" buttons which can display these photos in an enlarged scale, an "article information" button that can display various kinds of information associated with the vehicle type, a "standard vehicle information" button that can display a standard specification display window B-7 or B-14 which includes the specifications, data, and the like associated with a standard vehicle of that vehicle type, a manufacturer's suggested retail price of a vehicle unit (per custom vehicle) according to the specifications selected by the user, an "account" button that can display the account of that manufacturer's suggested retail price, as shown in

Fig. 26, and details of the specification items that have already selected by the user.

In this embodiment, since the manufacturer's suggested retail price can be displayed for each vehicle or specification item, the guideline of the purchase price upon selecting a custom vehicle with desired specifications can be presented to the user, thus improving the convenience.

Fig. 26 shows an example of the account window displayed upon operation of the "account" button shown in Fig. 25, and this window displays the manufacturer's suggested retail price of a vehicle unit, the selected specification items based on which the former retail price is calculated, and manufacturer's suggested retail prices of those items.

User's customize operations of a custom vehicle are restricted to select specification items in the order of select windows B-1 to B-6 for vehicle type A or B-8 to B-13 for vehicle type B, and the lower half region of the vehicle customize window displays the select processes (steps) corresponding to the windows B-1 to B-6 or B-8 to B-13 in the form of, e.g., a plurality of stacked folders.

Fig. 25 exemplifies a state wherein the folder of the third step is selected, and the selected folder (active state) displays possible user's choices of specification items in that step together with images

such as photos and the like, the price differences from
items of the standard vehicle, names (model numbers),
and the like. When the user selects a desired one from
the displayed choices (specifications), the selected
5   specification information is stored in the vehicle
manufacturer server 1 together with identification
information (ID) that specifies the user.

At this time, the vehicle manufacturer server 1
acquires the manufacturer's suggested retail price of
10 that specification item by referring to the
manufacturer's suggested retail price DB 31 using the
selected specification item information as a key, and
adds the acquired manufacturer's suggested retail price
of the specification item to those already selected in
15 the steps executed so far.

In this way, the manufacturer's suggested retail
price of a vehicle unit displayed at the upper right
position in Fig. 25 is updated, and if the "account"
button is selected later, the account display window
20 shown in Fig. 26 displays information added with
columns of the specification item selected in the
current step and its manufacturer's suggested retail
price.

In a preferred embodiment, the image of a custom
25 vehicle, customization of which is underway, may be
updated to reflect the selected specification items

(e.g., body color, wheel, and the like) as the user

selects desired specification items in respective steps.

More preferably, the display color of the folders

of the selected steps (steps 1 and 2 in Fig. 25) may be

5   changed to be different from that of the folders of the

steps to be selected (steps 3 to N in Fig. 25).

Furthermore, a "HOME" button that allows jump to

the home window A-2 (Fig. 24), and "BACK" and "NEXT"

buttons that can display the previous and next display

10   windows are displayed on the lower half region of the

vehicle customize window.

Choices available for the user in the respective

steps of the vehicle customize process (M2) have

predetermined limitations. Basically, the first step

15   of customization of a custom vehicle is restricted to

select the specification of a backbone that determines

the drive performance of that vehicle, and the

subsequent steps are restricted to select other items

to have the specification selected in the first step as

20   top priority.

That is, in this embodiment, since selection of

drive system components (i.e., corresponding to the

engine/transmission select window B-1 or B-8) as a

backbone of an automobile that can be manufactured by

25   the vehicle manufacturer as the first step, and

selection of wheel peripheral components (i.e.,

corresponding to the tire/wheel select window B-2 or

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B-9 of the second step) which are registered in advance in correspondence with the selected drive system components are made in turn, the specifications of the mechanism of the automobile, which directly influence the travel performance and drive performance, are determined prior to customization of the interior, audio, exterior, and the like, which do not directly influence the travel performance of the automobile.

In the vehicle customize process (M2), when the user has selected all specification items required for one custom vehicle using these windows, identification information (specification number) that specifies the vehicle specification of the custom vehicle of the user's choice is selected.

Fig. 9 is a system chart showing limitations on choices which are referred to upon selecting the mechanism of vehicle type A (sport type) in the vehicle customize process (M2). In order to select desired specifications for the mechanism of vehicle type A, choices of respective specification items, i.e., engine/transmission, suspension/tire·wheel, anti-lock brake system (ABS), and TORSEN LSD are set in turn to the right on the basis of a standard vehicle as base grade and base model shown on the left side in Fig. 9.

Fig. 10 is a system chart showing limitations on choices which are referred to upon selecting the interior of vehicle type A (sport type) in the vehicle

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customize process (M2), and is adopted for vehicle type A for which one of possible choices of mechanisms has been determined on the basis of the limitations on the choices shown in Fig. 9. In the example shown in

5 Fig. 10, choices of specification items of color, specifications, and the like of the interior are set in turn to the right, but these limitations are set in terms of design and price unlike in the mechanism.

Fig. 11 is a system chart showing limitations on
10 choices which are referred to upon selecting the audio system of vehicle type A (sport type) in the vehicle customize process (M2). In the example shown in Fig. 11, all audio systems are selectable for all vehicles of vehicle type A, the mechanism and interior
15 of which have been determined based on the limitations on choices shown in Figs. 9 and 10.

The limitation information of choices shown in Figs. 9 to 11 is pre-set in, e.g., the storage device 26 or the like of the vehicle manufacturer server 1 as
20 information to be referred to as choices which are to be displayed on the window corresponding to the next step when the user has selected give choices in respective steps of the aforementioned vehicle customize windows. Upon selecting all specification
25 items shown in Figs. 9 to 11, identification information (vehicle type ID) for the custom vehicle of the user is selected. The vehicle type ID selected at

that time belongs to the homologation that the vehicle manufacturer has acquired from a public organization for vehicle type A.

Fig. 12 is a system chart showing limitations on choices which are referred to upon selecting the mechanism of vehicle type B (wagon type) in the vehicle customize process (M2). Fig. 12 is basically the same as the system chart of vehicle type A (sport type) described above with reference to Fig. 9, but since vehicle type B is wagon type, specification items simpler than those of vehicle type A (sport type) are set.

Fig. 13 is a system chart showing limitations on choices which are referred to upon selecting the interior (including an audio system in this case) of vehicle type B (wagon type) in the vehicle customize process (M2). Fig. 13 is basically the same as the system chart of vehicle type A (sport type) described above with reference to Fig. 10. In the example shown in Fig. 13, simpler specification items are set in consideration of price in correspondence with the type of engine previously selected based on the limitations in Fig. 12.

Fig. 14 is a system chart showing limitations on choices which are referred to upon selecting the exterior of vehicle type B (wagon type) in the vehicle customize process (M2). In the example shown in

Fig. 14, simpler specification items are set in consideration of price in correspondence with the type of engine previously selected based on the limitations in Fig. 12.

The limitation information of choices shown in Figs. 12 to 14 is pre-set in, e.g., the storage device 26 or the like of the vehicle manufacturer server 1 as information to be referred to as choices which are to be displayed on the window corresponding to the next step when the user has selected give choices in respective steps of the aforementioned vehicle customize windows. Upon selecting all specification items shown in Figs. 12 to 14, identification information (vehicle type ID) for the custom vehicle of the user is selected. The vehicle type ID selected at that time belongs to the homologation that the vehicle manufacturer have acquired from a public organization for vehicle type B.

It is expected that users (customers) who are willing to purchase vehicles desirably customized using the estimation/ordering system described in this embodiment like driving itself compared to normal drivers who drive vehicles simply as transportation means, and it is easy to expect that such users take a greater interest in the drive system, tires/wheels, and the like upon purchasing vehicles. If the aforementioned limitations on choices are adopted, such

users' requirements can be efficiently and satisfactorily met.

In general, homologation must be acquired from a public organization in association with the objective vehicle type and specifications of an automobile prior to mass production and sales, and is determined based on the drive performance that greatly pertains to safe travel of an automobile. When the aforementioned limitations are adopted, the finally determined vehicle type ID can efficiently and reliably fall within the range of homologation acquired in advance from the public organization for a plurality of types of custom vehicles which can be selected by this system.

Therefore, upon making selections in turn on the vehicle customize window under the aforementioned limitations, the user (customer) can easily customize a vehicle of the desired vehicle type selected on the home window A-2 (Fig. 24) by his or her own interactive game-like operations, and can experience as if the engineer of an automobile tuning shop tuned an automobile.

Upon completion of selection of all specification items required for the specifications of a custom vehicle in the vehicle customize process (M2), a selected specification display window B-15 shown in Fig. 27 is displayed.

Fig. 27 shows an example of the selected specification display window B-15 displayed by the vehicle customize process (M2). The selected specification display window B-15 displays, for example,

5   photo images of the exterior and interior of the customized vehicle, selected specification items and their prices, the price of a standard vehicle, and the like.

Upon operation of a "dealer estimation demand"

10   button on the selected specification display window B-15 to demand an estimation of an actual sales price or to demand the dealer to estimate a sales price, the selected specification items of the custom vehicle are settled, and the control can transit to the

15   estimation/evaluation request process (M3) (to be described later). On the other hand, if the user has operated a "back" button, the control returns in turn to the vehicle customize windows corresponding to the aforementioned steps to change the specification items.

20   That is, alternative choices cannot be made unless the control returns to previous choices.

<Estimation/evaluation Request Process (M3)>

Fig. 5 shows transition of display windows in the estimation/evaluation request process (M3), and an

25   e-mail sending function upon issuing an estimation/evaluation request. This process is launched in response to operation of the "dealer

estimation demand" button after the custom vehicle has been customized in the vehicle customize process (M2). The control can return from the estimation/evaluation request process (M3) to the vehicle customize process

5 (M2) in response to user's operation.

As shown in Fig. 5, as transition of display windows in the estimation/evaluation request process (M3), an estimation demand top window C-1 (Fig. 28), evaluation application input window C-2 (Fig. 29),

10 dealer search/select window C-3, input content confirm window C-4, estimation/evaluation content submit window C-5, and dealer map browsing window C-6 can be displayed on the user terminal 5.

Estimation demand top window C-1 (Fig. 28): On

15 this window, the user of the user terminal 5 inputs items associated with himself or herself (name, and the like, or the user ID and password if they have already been issued), thus applying (requesting) the dealer for an estimation of the price of the custom vehicle

20 previously settled in the vehicle customized process (M2) or an evaluation for a trade-in. That is, after the information associated with the user is input on this display window, if a radio button "YES" that pertains to evaluation application is selected, the

25 evaluation application input window C-2 is displayed; if "NO" is selected, the dealer search/select window C-3 is displayed.

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Evaluation application input window C-2

(Fig. 29): On this window, the user of the user

terminal 5 inputs predetermined specification items

(automobile manufacturer name, vehicle name,

5　displacement, total mileage, and the like) of an

automobile to be traded (trade-in), and selects a

"next" button to display the dealer search/select

window C-3.

　　Dealer search/select window C-3 (not shown): On

10　this window, the user of the user terminal 5 can select

a dealer that he or she wants to request to estimate

the custom vehicle or to evaluate a trade-in by himself

or herself. As a select method, a method of

automatically presenting a nearby dealer on the basis

15　of the user's address previously input on the

estimation demand top window C-1 or the like, a method

of making the user select a desired dealer from those

displayed in a list, and the like may be used. In any

case, it is convenient for the user if the dealer map

20　browsing window C-6 pops up from the dealer

search/select window C-3.

　　When the dealer that the user requests to

estimate the custom vehicle or to evaluate a trade-in

is selected on the dealer search/select window C-3, the

25　input content confirm window C-4 is displayed on the

user terminal 5 of the user.

Input content confirm window C-4 (not shown):
This window displays in a list the contents of the
respective specification items (including
manufacturer's suggested retail prices) of the custom
5   vehicle previously settled in the vehicle customize
process (M2), the contents of items input by the user
himself or herself in the evaluation application input
window C-2 if the user selected evaluation of a
trade-in, information associated with the dealer
10   selected on the dealer search/select window C-3 to
request such estimation/evaluation, and the like. The
user of the user terminal 5 confirms the contents of
the information displayed on the input window content
confirm window C-4, and then actually submits an
15   estimation/evaluation request by predetermined
operation, thus displaying the estimation/evaluation
content submit window C-5 on the user terminal 5.

Estimation/evaluation content submit window C-5
(not shown): This window displays information
20   indicating that the estimation/evaluation request was
submitted and accepted by the vehicle manufacturer
server 1, and the user will receive an e-mail message
that pertains to the request contents from the dealer
selected by himself or herself.

25   The estimation/evaluation request process (M3)
includes a function of sending/receiving e-mail
messages in response to the estimation/evaluation

request submitted from the user terminal 5 on the estimation/evaluation content submit window C-5.

ID/password reply mail C-7: If the user submitted the first estimation request, an e-mail message that contains the ID/password is sent to the mail address previously input by the user.

Estimation/evaluation request notify mail C-8: The vehicle manufacturer server 1 sends an e-mail message that informs the dealer server 2 of an objective dealer that the user requested to estimate the custom vehicle and/or to evaluate a trade-in. This e-mail message contains information (address, name, mail address, and the like) which is input on, e.g., the estimation demand top window C-1 and can specify the user, identification information (specification number) of the vehicle specifications set in the vehicle customize process (M2), the specification items of the trade-in input on the evaluation application input window C-2, and the like.

Estimation/evaluation request confirmation mail C-9: The dealer that received the estimation request of the custom vehicle and/or the evaluation request of the trade-in from the user sends an e-mail message to the mail address previously input by the user so as to confirm if the user sent the estimation/evaluation request.

Evaluation result reply mail C-10: The dealer that received the evaluation request of the trade-in from the user sends an e-mail message which replies the evaluation result to the mail address previously input by the user.

Estimation result reply mail C-11: The dealer that received the estimation request of the trade-in from the user sends an e-mail message which replies the estimation result to the mail address previously input by the user.

Fig. 18 is a flow chart showing the estimation/evaluation request process (M1) executed by the vehicle manufacturer server 1.

Steps S41 and S42 in Fig. 18: It is checked if the estimation/evaluation request is issued during the vehicle customize process (M2) (step S41: corresponding to step S17 (Fig. 17)). If NO in step S41, the flow returns to step S13 (Fig. 17); otherwise, the estimation demand top window C-1 (Fig. 28) is displayed on the user terminal 5, and authenticity of the user ID and password input to that window is checked (step S42).

Steps S43 and S44: It is checked if the evaluation request is issued (step S43). If NO in step S43, the flow advances to step S45; otherwise, the evaluation application input window C-2 (Fig. 29) is displayed on the user terminal 5 to prompt the user to input information of a vehicle as a trade-in to be

evaluated, the dealer search/select window C-3 is then

displayed on the user terminal 5 to make the user

select a dealer, and the input information is sent to

the selected dealer via the estimation/evaluation

5   request notify mail C-8 (step S44).

Steps S45 and S46: It is checked if the

estimation request of the custom vehicle is issued

(step S45). If NO in step S45, the processing ends;

otherwise, the identification information

10   (specification number) of the vehicle specifications

set in the vehicle customize process (M2) is sent to

the dealer sever (S46).

<Estimation Item Confirm Process (M4)>

Fig. 6 shows transition of display windows in the

15   estimation item confirm process (M4). This process is

launched upon operation of the "purchase review list"

operation button on the home window A-2 displayed by

the initial process (M1). The control can transit from

the estimation item confirm process (M4) to the initial

20   process (M1), credit screening process (M5), or

negotiation application process (M6) in response to

user's operation.

As shown in Fig. 6, as transition of display

windows in the estimation item confirm process (M4), an

25   ID/password input window D-1 (Fig. 30), purchase review

information list window D-2 (Fig. 31), estimation item

confirm window D-3 (Fig. 32), estimated specification

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image display window D-4, credit screening result display window D-5, and trade-in evaluation result display window D-6 can be displayed on the user terminal 5.

ID/password input window D-1 (Fig. 30): On this window, the user of the user terminal 5 inputs the user ID (member ID) and password previously issued to that user, and operates "submit" button to log into this system (vehicle manufacturer server 1). Upon completion of the login process, the purchase review information list window D-2 (Fig. 31) is displayed on the user terminal.

Purchase review information list window D-2 (Fig. 31): On this window, lists of estimation, evaluation, and credit screening done for the user are displayed, and the user can, e.g., click a desired display item to display a window that indicates the detailed contents of the selected item on his or her user terminal 5.

Estimation item confirm window D-3 (Fig. 32): On this window, the user of the user terminal 5 can confirm the detailed contents of estimation previously done for the user. When the user has operated a "negotiation application" button, the control can transit to the negotiation application process (M6); when the user has operated an "examine credit" button, the control can transit to the credit screening process

(M5); and when the user has operated "estimated
specification image confirm" button, the user can
confirm the image of an automobile corresponding to the
currently displayed estimated specification of the
custom vehicle on the estimated specification image
display window D-4 (not shown). When the user has
operated an operation button "return to purchase review
list", the control can transit to the purchase review
information list window D-2 (Fig. 31).

Fig. 19 is a flow chart showing the estimation
item confirm process (M4) executed by the vehicle
manufacturer server 1.

Steps S51 and S52 in Fig. 19: It is checked if
an estimation item query request is issued during the
initial process (M1) (step S51: corresponding to step
S12 (Fig. 17)). If NO in step S51, the flow returns to
step S12 (Fig. 17); otherwise, the ID/password input
window D-1 (Fig. 30) is displayed on the user terminal,
and authenticity of the user ID and password input to
that window is checked (step S52).

Steps S53 and S54: A communication process with
the dealer server 2 is executed (step S53), and it is
inquired if the dealer server 2 has updated estimation
information associated with that user ID (step S54).
Note that the communication process in step S53 is
linked with step S211 of the control process (Fig. 20)
of the dealer server 2 (to be described later).

Step S55: Estimation information which is stored in the dealer server 2 and associated with the user ID is acquired, and the acquired estimation information is displayed on the user terminal 5 of that user using purchase review information list window D-2 (Fig. 31) or the estimation item confirm window D-3 (Fig. 32) in response to operation on that window.

Step S56: The updated estimation information which is stored in the dealer server 2 and associated with the user ID is displayed on the user terminal 5 of that user to allow the user to identify that the information has been updated, using purchase review information list window D-2 (Fig. 31) or the estimation item confirm window D-3 (Fig. 32) in response to operation on that window.

Steps S57 and S58: It is checked if the credit screening application request of the custom vehicle, the specifications of which have been settled, is issued (step S57: corresponding to step S17 (Fig. 17)). If YES in step S57, the flow advances to step S18 (Fig. 17); otherwise, the processing ends.

Furthermore, it is checked if a negotiation application request of the custom vehicle, the specifications of which have been settled, is issued (step S58: corresponding to step S19 (Fig. 17)). If YES in step S58, the flow advances to step S20 (Fig. 17); otherwise, the processing ends.

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<Credit Screening Process (M5), Negotiation Application Process (M6)>

Fig. 7 shows transition of display windows in the credit screening process (M5) and negotiation application process (M6), and an e-mail sending function upon credit screening and negotiation application. The credit screening process (M5) is launched upon operation of the "examine credit" button on the estimation item confirm window D-3 (Fig. 32) displayed by the estimation item confirm process (M4), and the negotiation application process (M6) is launched upon operation of the "negotiation application" button on the estimation item confirm window D-3 (Fig. 32). The control can transit from the credit screening process (M5) and negotiation application process (M6) to the estimation item confirm process (M4).

As shown in Fig. 7, as transition of display windows in the credit screening process (M5), a loan condition input window E-1 (Fig. 33), payment plan display window E-2 (Fig. 34), credit screening input window E-3, and credit application content submit window E-4 can be displayed on the user terminal 5.

Loan condition input window E-1 (Fig. 33): On this window, the user of the user terminal 5 can input various items that pertain to credit to be used when he or she purchases the custom vehicle, which is presented

by the estimated item selected in the estimation item
confirmation process, on installment, and the payment
plan display window E-2 (Fig. 34) is displayed on the
user terminal 5 upon operation of a "calculate" button
5 after the user inputs the predetermined items.

Payment plan display window E-2 (Fig. 34): This
window displays a list of credit calculation results
(payment plan) on the basis of the items set on the
loan condition input window E-1. Upon operation of a
10 "credit screening application" button on this window,
the credit screening application window E-3 is
displayed on the user terminal 5.

Credit screening application window E-3 (not
shown): On this window, the user of the user terminal
15 5 can apply to a credit company for credit screening
based on the payment plan displayed on the payment plan
display window E-2.

Credit application content submit window E-4 (not
shown): This window displays information indicating
20 that the credit screening application request was
submitted and accepted by the vehicle manufacturer
server 1, and the user will receive an e-mail message
associated with the screening result.

The estimation item confirm process (M4) includes
25 a function of sending/receiving an e-mail message in
response to credit screening application information

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submitted from the user terminal 5 on the credit
application content submit window E-4.

Credit screening request confirm mail E-5: The
vehicle manufacturer server 1 that received the credit
5   screening request from the user sends an e-mail message
to the mail address previously input by the user to
confirm if the user actually submitted the credit
screening request.

Credit screening request notify mail E-6: The
10   vehicle manufacturer server 1 sends an e-mail message
to the credit company to inform it that the credit
screening request was issued from the user. This
e-mail message contains the contents of the payment
plan displayed on the payment plan display window E-2,
15   information associated with the user, and the like.

Credit screening result reply mail E-7: The
credit company that made credit screening sends a reply
e-mail message of the screening result to the mail
address previously input by the user, and the vehicle
20   manufacturer server 1.

As transition of display windows in the
negotiation application process (M6) shown in Fig. 7, a
negotiation application input window F-1 (Fig. 35) and
negotiation application content submit window F-2 can
25   be displayed on the user terminal 5.

Negotiation application input window F-1
(Fig. 35): On this window, the user of the user

terminal 5 can input various items (the

presence/absence of a trade-in, the presence/absence of

credit use, desired date of negotiation, and the like)

associated with negotiation application to the dealer,

5   which presented the estimated price of the custom

vehicle presented by estimation items selected in the

estimation item confirmation process (M4), and the

negotiation application content submit window F-2 is

displayed on the user terminal 5 upon operation of a

10 "negotiation application" button after input of the

predetermined items.

Negotiation application content submit window F-2

(not shown): This window displays information

indicating that the application contents on the

15 negotiation application input window F-1 were submitted

and accepted by the vehicle manufacturer server 1, and

an e-mail or phone contact associated with negotiation

will be made from the corresponding dealer.

The negotiation application process (M6) includes

20 a function of sending/receiving e-mail messages in

response to negotiation application information

submitted from the negotiation application content

submit window F-2 on the user terminal 5.

Negotiation request confirm mail F-3: The

25 vehicle manufacturer server 1 that received the

negotiation request from the user sends an e-mail

message to the mail address previously input by the

user to confirm if the user actually issued the
negotiation request.

Negotiation request notify mail F-4: The vehicle
manufacturer server 1 sends an e-mail message to the
5   objective dealer to inform it that the negotiation
request was received from the user. This e-mail
message contains the contents displayed on the
negotiation application input window F-1, information
associated with the user, and the like.

10   In this embodiment, as a method of actually
placing an order of the custom vehicle to the vehicle
manufacturer after the negotiation at the dealer, a
method of placing an order from the dealer server 2 to
the vehicle manufacturer server 1, a method of placing
15   an order using a dedicated line, or the like may be
used.

<Shipping Query Process (M7), Instruction Process (M8)>

Fig. 8 shows transition of display windows in the
shipping query process (M7) and instruction process
20   (M8), and an e-mail sending function upon receiving a
shipping query.

The shipping query process (M7) is launched in
response to an operation button "ordered vehicle
shipping query" on the home window A-2 displayed by the
25   initial process (M1). The vehicle manufacturer server
1 executes a progress status management process
(Figs. 36 to 38; to be described later) at

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predetermined cycles irrespective of the access state of the user terminal 5 to this system so as to implement the shipping query process (M7: Fig. 21).

The instruction process (M8) is launched upon operation of an operation button "about this site", "purchase procedure", "privacy policy", or the like on the home window A-2. The control can transit from the shipping query process (M7) and instruction process (M8) to the initial process (M1) in response to user's operation.

The shipping query process (M7) in Fig. 21 can display an ID/password input window G-1 (the same as in Fig. 30) and shipping status query window G-2 (Fig. 22) on the user terminal 5.

ID/password input window D-1 (Fig. 30): On this window, the user of the user terminal 5 inputs the user ID (member ID) and password previously issued to that user, and operates "submit" button to log into this system (vehicle manufacturer server 1). Upon completion of the login process, the shipping status query window G-2 (Fig. 22) is displayed on the user terminal.

Fig. 22 shows an example of the shipping status query window displayed by the shipping query process (M7). On this display window, the user can recognize the progress status in a plurality of stages from

production until shipping of the custom vehicle that he or she is looking forward to delivery.

More specifically, the shipping status query window G-2 displays information that specifies the user, custom vehicle, and dealer, and presents the progress status in a plurality of stages from production until shipping of that custom vehicle by means of graphics indicating the current status, and images (photographed images) indicating respective stages. Also, a finished date is displayed for a stage that has been already finished.

When the user has clicked the second leftmost photo image of the production line in the respective stages shown in Fig. 22, photographed images during assembly (e.g., video or still images in a plurality of processes such as a backbone component assembly process, painting process, test process, and the like) are displayed on the user terminal 5.

When the user has clicked the third or fifth leftmost photo in the respective stages shown in Fig. 22, a map image indicating the transportation route and/or the current location upon transportation by a carrier ship or carrier vehicle (car carrier) of the custom vehicle is displayed on the user terminal 5.

Information to be displayed on the shipping status query window G-2 in Fig. 22 is collected as needed in the progress management DB 32 by the progress

status management process (Figs. 36 to 38; to be described later), and the vehicle manufacturer server 1 can acquire such information by referring to the progress management DB 32.

5   More specifically, when the vehicle type ID of the custom vehicle is determined by the aforementioned processes, and an on-line or off-line order of the custom vehicle with that vehicle type ID is placed, since the order number (order ID) of that custom

10   vehicle is issued, the custom vehicle, which is under assembly in progress in the assembly line, can be easily and automatically specified and tracked using the order number upon producing the custom vehicle in the assembly line (production line) 13.

15   For this purpose, a plurality of photographing devices 14 may be provided to the assembly process, painting process, test process, and the like in the assembly line 13 of the vehicle manufacturer, as shown in Fig. 1, and images photographed when the custom

20   vehicle reached the corresponding processes may be stored in the progress management DB 32 together with information of photographing dates using the order number (order ID) of the custom vehicle as a key.

As for the transportation route and/or the

25   current position upon transportation, since the coordinate position information of the carrier vehicle 11 can be easily acquired using the GPS communication

module 12 or the like mounted on the carrier vehicle 11,
as shown in Fig. 1, the acquired coordinate position
information may be stored in the progress management DB
32 using the order number (order ID) of the custom

5   vehicle as a key.

Fig. 42 shows an example of a transportation
status display window of a custom vehicle, which window
is displayed when an icon emphasized as "current
status" is selected from a plurality of icons shown in

10 Fig. 22 (in this case, assume that "under ship
transportation" is "current status"). The display
window shown in Fig. 42 is displayed on the basis of
the current position information, which is read out
from the carrier vehicle 11 and is stored in the

15 progress management DB 32, as described above. This
display window displays a symbol that indicates the
carrier vehicle, a symbol of a carrier ship and its
transportation route, and symbols indicating the
locations of the purchaser and dealer based on the

20 registered addresses together with a map image of a
region including these symbols.

Furthermore, after the order of the custom
vehicle is placed to the vehicle manufacturer, and an
actual production plan is determined in a management

25 computer or the like, the scheduled dates (and times)
the custom vehicle will reach the respective processes
can be automatically and easily calculated on the basis

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of the production plane, the production performance
(tact) of the assembly line (production line) used, and
the like. Hence, an e-mail message that describes the
calculated scheduled dates (and times) is sent to the
5   user, and when the user accesses the shipping status
query window G-2 (Fig. 22), the current status of the
custom vehicle, assembly of which is in progress, may
be presented to that user in real time. Such progress
status until shipping of the custom vehicle can be
10   provided as a pay option service by the progress status
management process (Figs. 36 to 38; to be described
later) in this embodiment.

When the purchaser subscribes to such pay option,
and when the user of the user terminal 5 as the
15   purchaser accesses this system on the scheduled date
informed via the e-mail message, and clicks the second
leftmost icon "under production" on the shipping status
query window G-2 (Fig. 22), a production status display
window shown in, e.g., Fig. 43 is displayed. This
20   production status display window displays icons
indicating a plurality of processes (the assembly
process of a vehicle body, painting process, inspection
process upon completion, and the like) in the assembly
line. When the user selects one of these icons, an
25   image of the process corresponding to the selected icon
is displayed. As shown in Fig. 43, this production
status display window displays the finishing time when

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assembly of the custom vehicle has finished, thus enhancing expectation to shipping of the purchaser.

Fig. 44 shows an example of a display window which includes a photographed image of one process and an operation window of the photographing devices 14, and exemplifies a case wherein the icon of "paint (1)" process is selected on the production status display window shown in Fig. 43. This display window displays, as a man-machine interface, buttons for selecting one of the plurality of photographing devices 14 equipped at the "paint (1)" process, and adjusting the photographing states (zoom, tilt, pan, and in-focus states) of the selected photographing device 14, and also a display area of an image photographed by the selected photographing device 14. Also, the display window displays the name and the like of the purchaser of the custom vehicle. When the user of the user terminal 5 accesses this system after an elapse of the scheduled date that he or she was informed of on the display window shown in Fig. 44, no buttons for remote-controlling the photographing device 14 from the user terminal 5 are displayed.

As described above, according to the displayed image (Fig. 44) for each process, the user (purchaser) of the user terminal 5 can confirm photographed images (video image or still image) during assembly of the ordered custom vehicle in respective processes in real

time. In this manner, the user can enjoy the processes
themselves until shipping, and can enhance expectation
to shipping. Since this display window includes the
names of operators who are concerned in objective

5   processes, the sense of responsibility on jobs can be
improved on the part of these operators, and
expectation to shipping, and confidence and attachment
to the delivered specific vehicle can be enhanced on
the part of the purchaser.

10   In this embodiment, the purchaser (customer) of
the custom vehicle can subscribe to an option service,
in which he or she can participate in assembly of the
custom vehicle by remote control, upon making a
purchase contract.

15   In Fig. 22, an "assembly participate" button is a
software button additionally displayed for only the
user terminal 5 of the purchaser who has subscribed to
an option service upon making a purchase contract.
When the purchaser who has subscribed to the option

20   service accesses this system using the user terminal 5
in accordance with the settled schedule informed via an
e-mail message, and clicks the "assembly participate"
button on the shipping status query window G-2
(Fig. 22), an operation window shown in Fig. 39 is

25   additionally displayed as a man-machine interface for
remote control.

In this embodiment, the user participates in
assembly by remote control from the user terminal.
Alternatively, the user may visit the assembly line of
the vehicle manufacturer according to the settled
5   schedule to actually make an easy assembly operation.

Fig. 21 is a flow chart showing the shipping
query process (M7) executed by the vehicle manufacturer
server 1.

Steps S101 and S102 in Fig. 21: It is checked if
10   a shipping status query request is issued during the
initial process (M1) (step S101: corresponding to step
S12 (Fig. 17)). If NO in step S101, the flow returns
to step S12 (Fig. 17); otherwise, the ID/password input
window D-1 (the same as in Fig. 30) is displayed on the
15   user terminal 5 and the authenticity of the user ID and
password input to that window is checked (step S102).

Steps S103 and S104: Information (including
images in the manufacture processes) such as a shipping
date/status, and the like of the custom vehicle
20   corresponding to the input ID/password, which
information is stored in the progress management DB 32,
is read out (step S103), and the shipping status query
window G-2 (Fig. 22) containing the readout information
is displayed on the user terminal 5 (step S104).

25   Steps S107 and S108: It is checked if the
request of progress display including a map is received
from the user terminal 5 (step S107). If YES in step

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S107, the flow advances to step S109; otherwise, a window corresponding to the input operation made at the user terminal 5 is displayed (step S108).

Steps S109 to S111: It is checked if the user terminal 5 has map information or can acquire it externally (step S109). If YES in step S109, the current position information of the complete vehicle under transportation, which is stored in the progress management DB 32, is acquired (step S110); otherwise, the current position information of the complete vehicle under transportation and a map image around there are acquired, and an image performed plotting corresponding to the current position information on that map image is generated (step S111).

Step S112: The current position information or the map image around the current position generated in step S111 is sent to the user terminal 5.

Figs. 36 to 38 are flow charts showing the progress status management process executed by the vehicle manufacturer server 1.

Step S301 in Figs. 36 to 38: Status information indicating progress status until shipping of each vehicle is acquired from a host computer (not shown) for production management or the like, and the acquired status information is stored in the progress management DB 32. This status information contains, for each vehicle, contract status, gathering status of

components required for assembly to the vehicle manufacturer, production status in the assembly line 13, transportation status until shipping to the purchaser, shipping date information, and the like.

5   Note that each vehicle is the ordered custom vehicle or a vehicle which can be assigned (reserved) as the custom vehicle in the middle of assembly (to be referred to as a customizable vehicle hereinafter).

Steps S302 and S303: It is checked by referring
10   to the progress management DB 32 if shipping date information of the custom vehicle before delivery to the purchaser is settled or changed (step S302). If NO in step S302, the flow advances to step S304; otherwise, a shipping status report mail message G-3 which
15   contains information that pertains to the settled shipping date or a change in shipping date and is set with the dealer in charge of the corresponding vehicle as a source is sent to the user terminal 5 of the corresponding purchaser (step S303).

20   Step S304: It is checked by referring to the progress management DB 32 if scheduled times at which the custom vehicle will pass the production processes of the assembly line 13 have been determined. If YES in step S304, the flow advances to step S305; otherwise,
25   the flow advances to step S307. If it is determined in this step that the scheduled passage times have been determined, this means that scheduled times at which

the custom vehicle of interest will pass the
predetermined ranges of the plurality of photographing
devices 14 set in the production processes of the
assembly line 13 (i.e., times at which photographed

5   images are to be recorded) have been clarified.

Steps S305 and S306: It is checked by referring
to the progress management DB 32 if the purchaser of
the custom vehicle of interest is a subscriber of a pay
option (step S305). If NO in step S305, the flow

10   advances to step S307.

On the other hand, if YES in step S305, an e-mail
message that informs the purchaser of the custom
vehicle of interest of scheduled times at which that
custom vehicle will pass the predetermined

15   photographing ranges of the individual photographing
devices 14 during assembly in turn in the respective
production processes of the assembly line 13 is sent to
the user terminal 5 of the corresponding purchaser
(step S306). The source of this e-mail message is

20   automatically set to be the dealer in charge of the
custom vehicle of interest (purchaser).

Note that the pay option is a service for
informing the purchaser of the scheduled times at which
the custom vehicle will pass the predetermined

25   photographing ranges of assembly operations in
respective stages and providing images of production
(assembly) in the respective stages in real time using

the display windows as shown in Figs. 43 and 44 above,

so as to provide photographed images of the respective

stages (production processes) from the initial stage of

assembly of that custom vehicle (e.g., an unpainted

5   stage before principal components which form a body are

assembled) to finishing (e.g., shipping) in real time

to the purchaser who has ordered that custom vehicle.

With this service, the purchaser can enjoy the

processes themselves until shipping, and his or her

10   expectation to shipping can be enhanced. In this case,

for the vehicle manufacturer, an additional job for

adjusting the production plan of the assembly line 13

is needed so as to, for example, be able to provide

photographed images in respective stages of production

15   in nearly real time, since the custom vehicle of

interest must be manufactured in a semi-full-order

system. However, the value for that job is provided by

additional cost received from the purchaser as a pay

service, thereby a reasonable business option is

20   realized.

Steps S307 and S308: It is checked by referring

to the progress management DB 32 if the objective

custom vehicle or customizable vehicle passes (or is

about to pass) the predetermined photographing range of

25   each photographing device 14 (step S307). If NO in

step S307, the flow jumps to step S316. On the other

hand, if YES in step S307, it is checked if the

purchaser of the custom vehicle is a subscriber of the pay option (step S308). If NO In step S308, the flow jumps to step S316; otherwise, the flow advances to step S309.

5   Step S309: It is checked if the user terminal 5 for the purchaser of the objective custom vehicle has established connection to this system. If NO in step S309, the flow advances to step S310; otherwise, the flow advances to step S311.

10   Step S310: An image of the objective custom vehicle or customizable vehicle is photographed at a predetermined timing and in a predetermined photographing state as that vehicle passes the predetermined photographing range of each photographing
15   device 14 upon assembly in turn in respective production processes of the assembly line, and the photographed image is stored in the progress management DB 32 in association with the record of status information associated with that custom vehicle. The
20   flow then advances to step S314. The photographed image stored in this step is read out from the progress management DB 32 in response to display of the display window shown in Fig. 44 on the user terminal 5, and is displayed on the photographed image display area
25   included in that display window.

More specifically, images of not only the custom vehicle but also the customizable vehicle during

assembly must be photographed and recorded in step S310.
The reason for this will be explained below. When
progress status in each stage until shipping of the
custom vehicle is provided to the purchaser (user of

5   the user terminal 5) by means of photographed images,
the respective assembly states of that custom vehicle
in the assembly line 13 must be photographed in turn,
and this embodiment provides photographed images in
nearly real time as the pay option.

10   However, a customizable vehicle during assembly
in the assembly line 13 must often be assigned
(reserved) as the custom vehicle according to the order
to assure a short shipping term. In such case,
photographed images of that vehicle before it was

15   ordered as the custom vehicle are often not available.
Hence, in this embodiment, images of the customizable
vehicle during assembly are photographed and recorded
in step S310, and photographed images before assignment
corresponding to the ordered custom vehicle are

20   acquired from the photographed images. In this way,
photographed images of respective stages from the
beginning of assembly to finishing can be provided to
the purchaser of the ordered specific vehicle, although
they are provided not in real time, and the purchaser

25   can enjoy the processes themselves until shipping.

Step S311: Since the user terminal 5 for the
purchaser of the objective custom vehicle has

established connection to this system, the display

window which includes the photographed image of a

predetermined one process where the objective custom

vehicle is scheduled to pass at the current timing, and

5   the operation window of the photographing device 14 is

displayed on the user terminal 5.

Step S312: A desired one of the plurality of

photographing devices 14 equipped at the objective

process is selected, the photographing states (zoom,

10   tilt, pan, and in-focus states) of the selected

photographing device 14 are adjusted, and an image is

photographed in response to operations of software

buttons for various operations included in the display

window (Fig. 44) displayed on the user terminal 5.

15   Step S313: The image photographed in step S312

is stored in the progress management DB 32 in

association with the record of status information

associated with the custom vehicle, and is displayed in

nearly real time on the display window shown in Fig. 44,

20   which is displayed on the user terminal 5.

Step S314: The name and the like of the

purchaser are stored in the record that stores the

photographed images as status information associated

with the custom vehicle in the progress management DB

25   32 to update the old record. The information items

stored in this step are read out from the progress

management DB 32 together with the photographed image

in response to display of the display window shown in Fig. 44 on the user terminal 5, and are displayed at predetermined positions in that display window.

Note that the customizable vehicle, the purchaser of which was determined in the middle of assembly, has already undergone predetermined assembly processes in the assembly line 13 before it was ordered as a custom vehicle of purchaser's choice, and its assembling states have already photographed and stored in the progress management DB 32 in step S310. When the purchaser is determined in the middle of assembly, the names and the like of the determined purchaser may be inserted in images which have already been stored in the progress management DB 32 in association with the customizable vehicle assigned as a custom vehicle to be delivered to that purchaser, and such information can be stored in the progress management DB 32 to update the old record. The information items such as the name and the like of the purchaser, which are newly stored in the progress management DB 32 are read out from the progress management DB 32 together with the photographed image in response to display of the display window shown in Fig. 44 on the user terminal 5, and are then displayed at predetermined positions in that display window.

Step S315: Furthermore, information associated with the name, photo, profile, and the like of an

operator in charge of each process (assembly,

inspection, or the like) corresponding to the

photographed image is acquired from a database (not

shown), and the acquired information is stored in

5   association with the record that stores the

photographed image as status information associated

with the corresponding custom vehicle in the progress

management DB 32 to update the old record. The

information items newly stored in this step are read

10   out from the progress management DB 32 together with

the photographed image in response to display of the

display window shown in Fig. 44 on the user terminal 5,

and are displayed at predetermined positions in that

display window.

15   Steps S316 and S317: It is checked if special

value-added information is present in association with

the custom vehicle or customizable vehicle (step S316).

If NO in step S316, the flow advances to step S318;

otherwise, the value-added information is stored as

20   status information of the corresponding custom vehicle

or customizable vehicle stored in the progress

management DB 32 to update the old information (step

S317).

Note that the value-added information is

25   information which is associated with a special

situation (e.g., air transportation of a principal

component such as an engine or the like) falling

outside a plurality of predetermined processes until

shipping of the custom vehicle upon assembling the

custom vehicle in the assembly line 13. In this

embodiment, since the purchaser of the custom vehicle

5   can be informed of such special situation using the

display window shown in, e.g., Fig. 41, he or she can

enjoy the processes themselves until shipping, and can

enhance expectation to shipping and attachment to the

delivered custom vehicle. However, upon displaying,

10   for example, the component position display window

(Fig. 41), it is practically difficult to calculate the

current location of each component. In such case, the

current location of a deficient component may be

estimated by a reverse operation from the already

15   determined production plan. With such display window,

since the purchaser can recognize the gathering status

of components required to build the ordered custom

vehicle to the vehicle manufacturer, he or she can

enjoy processes themselves until shipping, and can

20   enhance expectation to shipping.

Steps S318 and S319: It is checked if production

of the custom vehicle or customizable vehicle is

complete, and is removed from the assembly line 13

(step S318). If NO in step S318, the flow advances to

25   step S320; otherwise, the time information upon

completion of production is stored in association with

status information associated with the corresponding

custom vehicle or customizable vehicle in the progress

management DB 32 to update the old information (step

S319). The information items newly stored in step S319

are read out from the progress management DB 32 in

5   response to display of the display window shown in

Fig. 43 on the user terminal 5, and are displayed at

predetermined positions in that display window.

Steps S320 and S321: It is checked if production

of the custom vehicle or customizable vehicle is not

10   started in the assembly line 13 (step S320). If NO in

step S320, the flow advances to step S322; otherwise,

information indicating that the custom vehicle is

"before production" and location information of

required components are stored in association with

15   status information associated with the corresponding

custom vehicle or customizable vehicle in the progress

management DB 32 to update the old information (step

S321). The information items newly stored in step S321

are read out from the progress management DB 32 in

20   response to display of the display window shown in

Fig. 41 on the user terminal 5, and are used to

calculate the display positions of components to be

displayed on that display window.

Note that the location information of each

25   component associated with status information is cleared

at the beginning of production of the corresponding

custom vehicle or customizable vehicle in the assembly
line 13.

Steps S322 and S323: It is checked if the custom
vehicle for which the assembly participation contract
5   was made has passed a predetermined process in the
assembly line 13 (step S322). If NO in step S322, the
flow advances to step S324; otherwise, an e-mail
message that describes the settled schedule for
assembly participation is sent to the user terminal 5
10   for the purchaser of the custom vehicle (step S323).

Step S324: It is checked if the custom vehicle
for which the assembly participation contract was made
has reached a predetermined assembly participation
process in the assembly line 13. If NO in step S324,
15   the flow returns to step S301; otherwise, the flow
advances to step S325.

Step S325: The custom vehicle for which the
assembly participation contract was made is moved to a
predetermined assembly participation process.

20   Note that the predetermined assembly
participation process in the assembly line 13 is a
dedicated process juxtaposed with a normal assembly
line (processes N, N+1, N+2,...) in the assembly line,
as shown in Fig. 40, and comprises an automatic machine
25   which makes a predetermined job (e.g., fastens bolts)
in response to remote control from the user terminal 5
via the vehicle manufacturer server 1.

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Steps S326 and S327: The remote-control operation window shown in Fig. 39 is displayed on the user terminal 5 for the purchaser of the custom vehicle for which the assembly participation contract was made, and the automatic machine equipped in the assembly participation process is controlled in response to remote control by the purchaser using that display window to execute a predetermined automatic assembly job (step S326). Upon detection of completion of the automatic assembly job in the automatic assembly process in step S327, the flow advances to step S328.

The operation window shown in, e.g., Fig. 39 displays an image obtained by photographing the state of the assembly participation process, and also software buttons and the like for selecting the photographing device 14 used to photograph the assembly participation process, adjusting the photographing state of the selected photographing device, and instructing start of assembly by remote control. With this operation window, the purchaser can enjoy the processes themselves until shipping, and can enhance expectation to shipping and attachment to the delivered custom vehicle.

Step S328: The custom vehicle that has undergone the automatic assembly job in the assembly participation process is incorporated in the normal assembly line, and the flow returns to step S301.

According to the aforementioned shipping query process (M7) and progress status management process (Figs. 36 to 38), the user can easily recognize respective stages until shipping of the custom vehicle (specific vehicle) he or she ordered on his or her user terminal 5 such as a computer or the like, and expectation of the user who is looking forward to delivery can be satisfied.

In the instruction process (M8) shown in Fig. 8, an instruction H-1 of the custom vehicle estimation/ordering system, an instruction H-2 of the purchase process, an instruction H-3 of inquiry/FAQ, and an instruction H-4 of privacy policy are displayed on the user terminal 5. These instructions (instruction windows: none of them are shown) can be registered in advance in, e.g., the storage device 26 of the vehicle manufacturer server 1.

[Software Executed by Dealer Server 2]

Software executed by the CPU 21 of the dealer server 2 will be explained below.

Fig. 20 is a flow chart showing the control process executed by the dealer server 2 in this embodiment.

Steps S201, S202, and S204 in Fig. 20: It is checked if a change or update request of the estimated price stored in the estimated price DB 35 is received (step S201). If NO in step S201, the flow jumps to

step S209; otherwise, it is checked using the ID and password if the operator is a predetermined user of the dealer (step S202). If it is determined in step S202 that the operator is the predetermined user, login to

5 the dealer server 2 is permitted, and the flow advances to step S203; otherwise, a warning is generated (step S204), and login to the dealer server 2 is denied.

Steps S203 and S205: The estimated prices associated with the dealer, which are currently

10 registered in the estimated price DB 35, are simultaneously displayed (step S203), and the registration contents of the estimated price DB 35 are updated in accordance with input operations on the displayed window (step S205).

15 Steps S206 and S207: It is checked by referring to the update history of the estimated price DB 35 if the estimated price is to be changed in association with the user from whom the estimation request of the custom vehicle has already been received, and to whom

20 the estimated price of that custom vehicle has already been presented (step S206). If NO in step S206, the flow jumps to step S209; otherwise, the estimated amount per custom vehicle is recalculated (step S207).

Step S208: An e-mail message (estimation result

25 reply mail C-11) indicating that the estimated amount of the custom vehicle has been changed, and the changed amount is sent to the corresponding user terminal. In

this manner, the estimated price of an article with desirably selected specifications can be automatically and efficiently provided to the user, and such process can contribute to a price reduction of the article.

5   Steps S209 and S210: It is checked if the dealer receives the estimation request and/or the evaluation request from the vehicle manufacturer server 1 via estimation/evaluation request confirm mail C-9 (step S209). If NO in step S209, the flow advances to step
10   S211; otherwise, the estimated amount per custom vehicle is calculated with reference to the estimated price DB 35 in accordance with the identification information (specification number) which is acquired via the mail and indicates the custom specifications
15   (step S210). If the estimation/evaluation request confirm mail C-9 contains the evaluation request in step S209, a trade-in is evaluated in accordance with the specification items of the trade-in acquired via that mail. Note that the evaluation may be made by
20   actually confirming the trade-in by a service person of that dealer in a conventional way, or may be automatically made by referring to a database or the like in which the market prices of pre-owed vehicles are set.

25   Step S211: A communication process with the vehicle manufacturer server 1 is executed. In this process, the estimated price DB 35 undergoes update

(equalization) of specification items which are stored in the manufacturer's suggested retail price DB 31 and can be selected by this system from the vehicle manufacturer server 1. Also, the dealer server 2 sends

5   the estimated price for the objective customer (the user of the user terminal 5) to the vehicle manufacturer server 1 when the estimated price has been updated in step S205 or when the request is received, in accordance with the above described process in step

10   S55 of Fig. 19, from the vehicle manufacturer server 1 to display the order review information list window D-2 (Fig. 31) or estimation item confirm window D-3 (Fig. 32) on the user terminal.

According to the above embodiment, the user

15   himself or herself can easily, pleasantly, and interactively select desired specifications from specification items of a custom vehicle that the automobile manufacturer can supply as if he or she were playing a game, and can find himself or herself

20   entertained upon purchasing a vehicle.

The estimated price of the custom vehicle with selected desired specifications can be efficiently provided to the user. Custom vehicles (specific vehicles) even in relatively small production quantity

25   can be provided to the users with relatively low prices, and business operation efficiencies of the dealers and automobile manufacturer can be improved.

In the embodiment mentioned above, an automobile has been exemplified as an article which is to be customized and ordered. However, the present invention is not limited to vehicles such as an automobile, and

5   can be widely applied to industrial products (e.g., electric appliances, prefabricated houses, and the like) which allow mass production, and for which a plurality of different specifications or options can be set.

10   As many apparently widely different embodiments of the present invention can be made without departing from the spirit and scope thereof, it is to be understood that the invention is not limited to the specific embodiments thereof except as defined in the

15   claims.